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VEGETATION MAPS OF THE HANFORD REACH, COLUMBIA RIVER, (U)  
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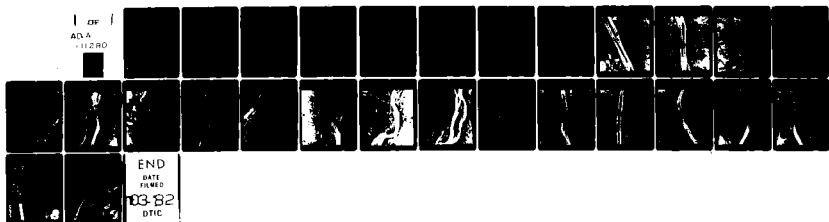
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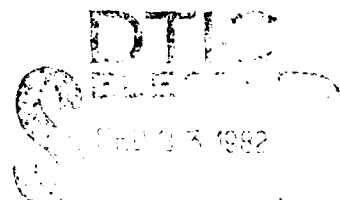
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## **Vegetation Maps of the Hanford Reach, Columbia River**

J. L. Warren

March 1980

Prepared for  
U.S. Army Corps of Engineers, Seattle District  
under Contract DACW67-79-C-0155



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  <p>This volume was prepared as part of a study of aquatic and riparian resources of the Hanford Reach of the Columbia River. The US Army Corps of Engineers has been directed by Congress to study the Hanford Reach to develop a plan for future use of the Columbia River and to evaluate the Ben Franklin Lock, Dam and Reservoir alternative. Identification of existing resources and uses of the reach are necessary to provide background information for the study of alternative uses.</p>								

Major plant communities recognized along the Hanford Reach are summarized in Table 1. A description of the different kinds of plant communities along the Hanford Reach may be found in the report which this volume supplements. Riparian vegetation is differentiated from nonriparian vegetation primarily based on the judgment that riparian vegetation is dependent upon a source of water other than rainfall for its survival. On the shores of the Hanford Reach, these sources of water are the Columbia River, spring seeps and waste water return ditches and canals associated with the Bureau of Reclamation's Columbia Basin Irrigation projects.

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## INTRODUCTION

This volume was prepared as part of a study of aquatic and riparian resources of the Hanford Reach of the Columbia River. The U.S. Army Corps of Engineers has been directed by Congress to study the Hanford Reach to develop a plan for future use of the Columbia River and to evaluate the Ben Franklin Lock, Dam and Reservoir alternative. Identification of existing resources and uses of the reach are necessary to provide background information for the study of alternative uses.

The aerial photographs in this volume, taken in August 1979 and provided by the Corps of Engineers, were used as the basis for mapping shoreline vegetation along the Hanford Reach, from the City of Richland to Priest Rapids Dam. Ground-truthing was performed in October 1979, and a series of ground-level photographs were taken to help verify the mapping. The shoreline and islands were visited, and notes were made of the dominant plant species and their rooting substrates. Preliminary maps showing community types were prepared using natural color and infrared (false-color) photographs obtained from other sources. Additional ground-truthing was done in late December 1979 to help refine the preliminary boundaries.

Major plant communities recognized along the Hanford Reach are summarized in Table 1. A description of the different kinds of plant communities along the Hanford Reach may be found in the report which this volume supplements.<sup>(a)</sup> Riparian vegetation is differentiated from nonriparian vegetation primarily based on the judgment that riparian vegetation is dependent upon a source of water other than rainfall for its survival. On the shores of the Hanford Reach, these sources of water are the Columbia River, spring seeps and waste-water return ditches and canals associated with the Bureau of Reclamation's Columbia Basin Irrigation projects.

Riparian vegetation is listed for Categories 1 through 4 of Table 1. Vegetation in Categories 1 and 3 is found in small, isolated patches on the Hanford Reach, with the exception of common spikerush (*Eleocharis palustris*), which is abundant along the river's edge. Vegetation in Categories 2 and 4 are found extensively along shorelines and slough areas. Nonriparian vegetation has been divided into four categories describing vegetation on island cobble substrates (Category 5), upland silt loam substrates (Category 6A), island sand or silt loam substrates (Category 6B) and sand dunes (Category 7).

Other vegetation on the Hanford Reach not listed in Table 1 includes crops growing in agricultural fields located along the eastern shore downstream from

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(a) Fickeisen, D. H., D. D. Dauble, D. A. Neitzel, W. H. Rickard, R. L. Skaggs and J. L. Warren. 1980. Aquatic and Riparian Resource Study of the Hanford Reach, Columbia River, Washington. Report to the U.S. Army Corps of Engineers, Seattle District, Seattle, Washington by Battelle, Pacific Northwest Laboratories, Richland, WA.

Ringold Flats and scattered clumps of exotic trees planted in the 1930's and earlier marking the location of abandoned farmsteads. These groups are present on both sides of the river and usually consist of single rows of black locust (Robinia pseudo-acacia), lombardy poplar, Russian olive (Elaeagnus angustifolia), Siberian elm (Elmus pumila) or white mulberry (Morus alba) areas. Nonvegetated areas such as the steep walls of White Bluffs that drop directly into the river are also found on the Hanford Reach.

Table 1. Characteristic Vegetation on the Hanford Reach of the Columbia River

Category	Species	Substrate	Water Level Fluctuations	Location	
				riparian	
Wet	1	water-cress	Permanently inundated; little water level fluctuations daily or seasonally	mud	Ringold Flats area and seeps; found above and below 400' contour
	2	water smartweed water speedwell	Frequently inundated by daily water level fluctuations	cobble	Narrow zone all along shores; patches on shallow tips of land; all found below 400' contour
	3	common cat-tail common spikerush bulrush	Frequently wetted by daily water level fluctuations	mud or cobble	Small isolated patches along river; cat-tails best developed at Ringold Flats, all found below 400' contour
	4	reed canarygrass common witchgrass large barnyard grass summer blooming forbs <sup>1</sup> sandbar willow poplar white mulberry <sup>ET</sup> russian olive <sup>ET</sup>	Periodically wetted by daily water level fluctuations	cobble	Best development at Ringold Flats, Jap slough, 100 F slough, Hanford slough, White Bluffs slough, 100 D gravel bar; in small amounts along the main & islands shorelines; all found below 400' contour
Dry					

<sup>1</sup>Summer blooming forbs include: Goldenrod, sneezeweed, Columbia coreopsis, conyza, gaillardia, aster, chives, common yellow sweet-clover, Oregon golden-aster, Columbia River grindelia, creeping buttercup.

ET = Exotic Tree

NOTE: Areas not marked represent vegetation too small to delineate.

Shoreline areas unmarked consist of Category 4.



Table 1. (contd)

Category	Species	Substrate	Water Level Fluctuations	Location
Wet	5	absinthium northern buckwheat lupine sand dropseed	cobble	Wetted only during annual flood periods
	6A	UPLAND SEMI-ARID big sagebrush bitter-brush common rabbit-brush spiny hopsage cheat grass Sandberg's bluegrass Jim Hill mustard western tansymustard	silt loam	Scattered locations along the river and islands, 100 D gravel bar, 100 F area, 100 B-C area; all found below 400' contour
	6B	ISLAND SEMI-ARID thick-spiked wheatgrass giant wildrye yarrow cheat grass	silt-sand loam	Lands on the Hanford Site and slopes above Ringold Flats; found above and below 400' contour
	7	lance-leaf scurf-pea pale evening-primrose thick-spiked wheatgrass winged dock	sand	Lands on the Hanford Site and slopes above Ringold Flats; found above and below 400' contour
Dry				West bank of the river opposite island 11; found above and below 400' contour

non-riparian



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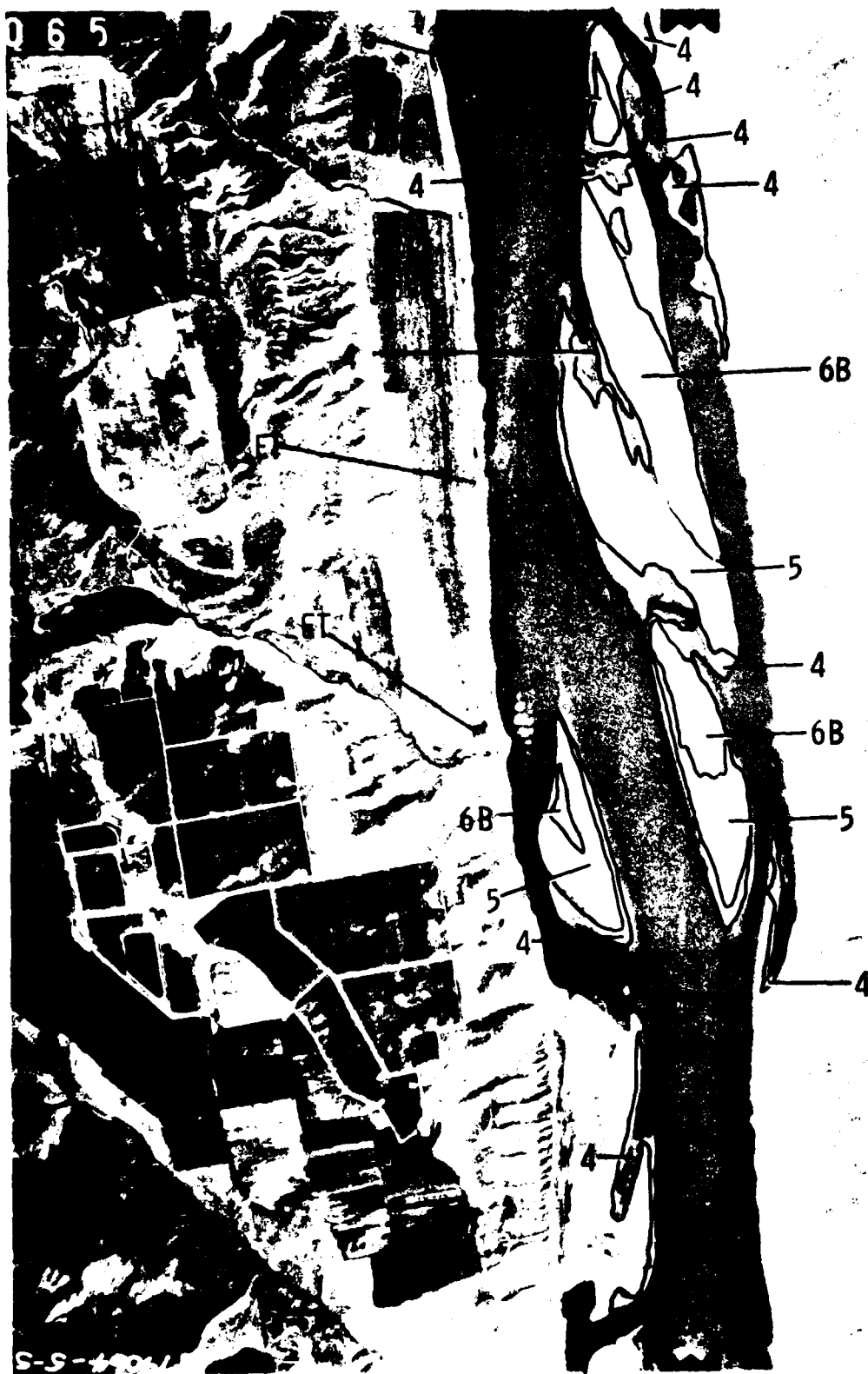
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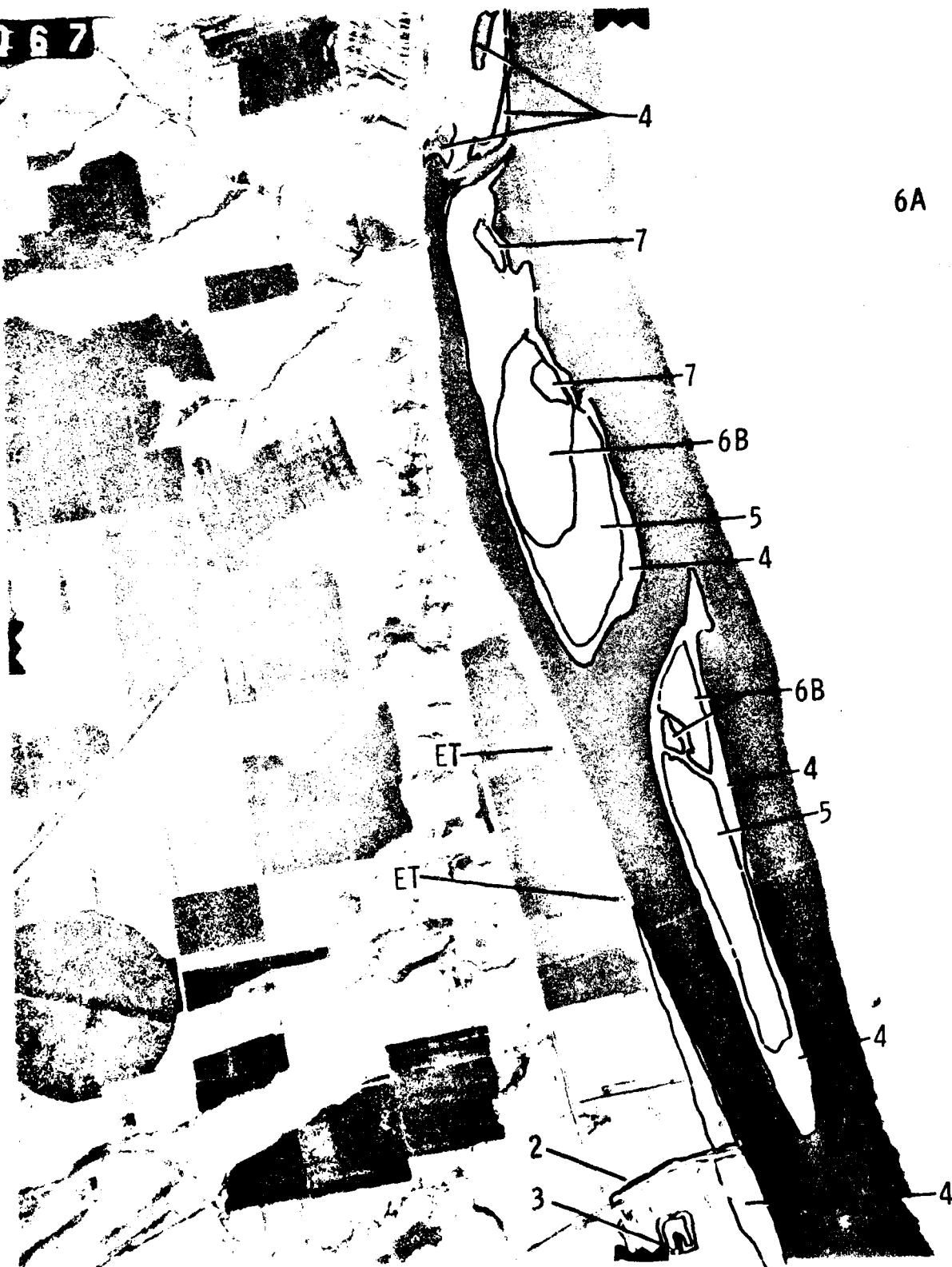
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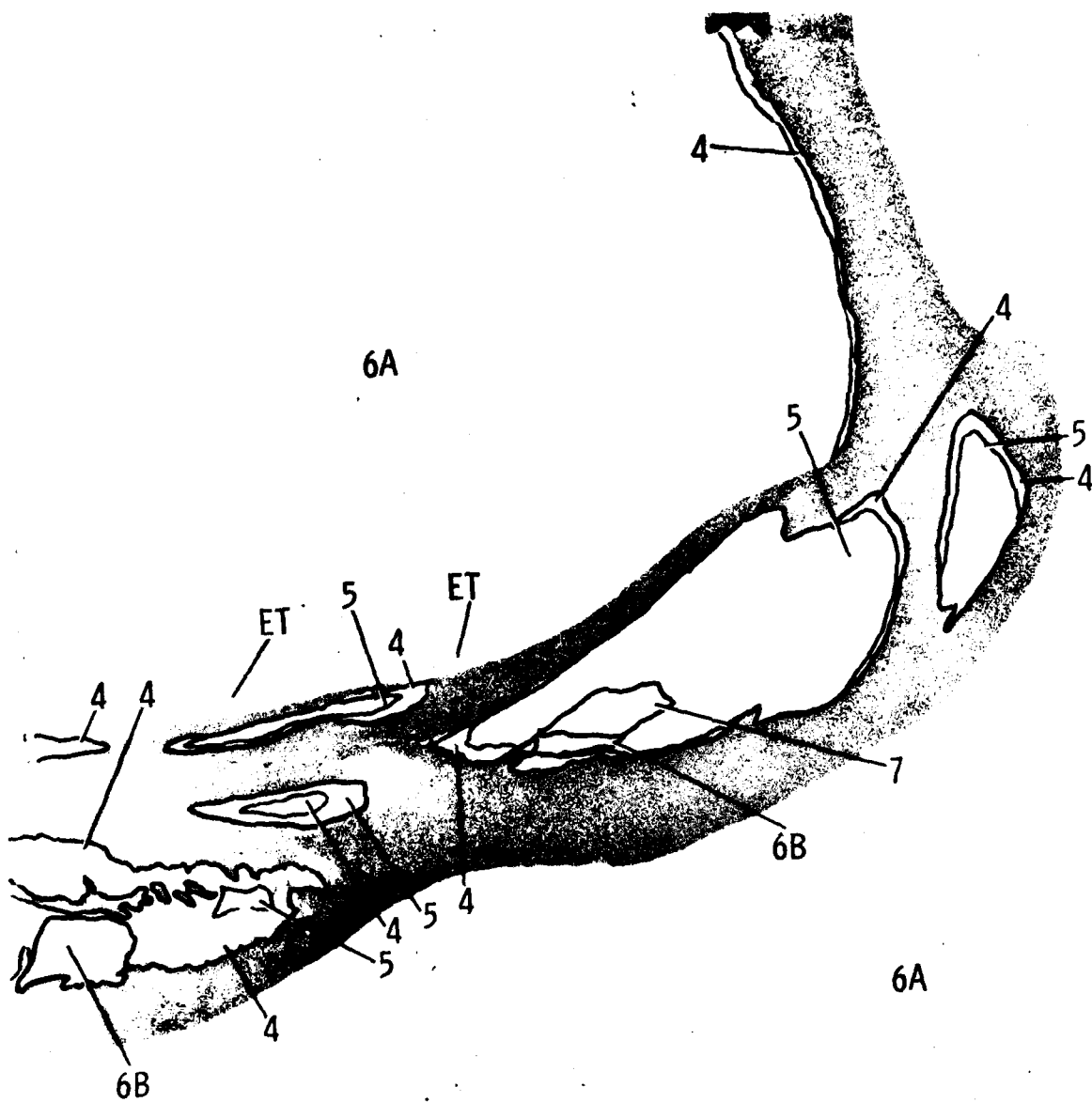
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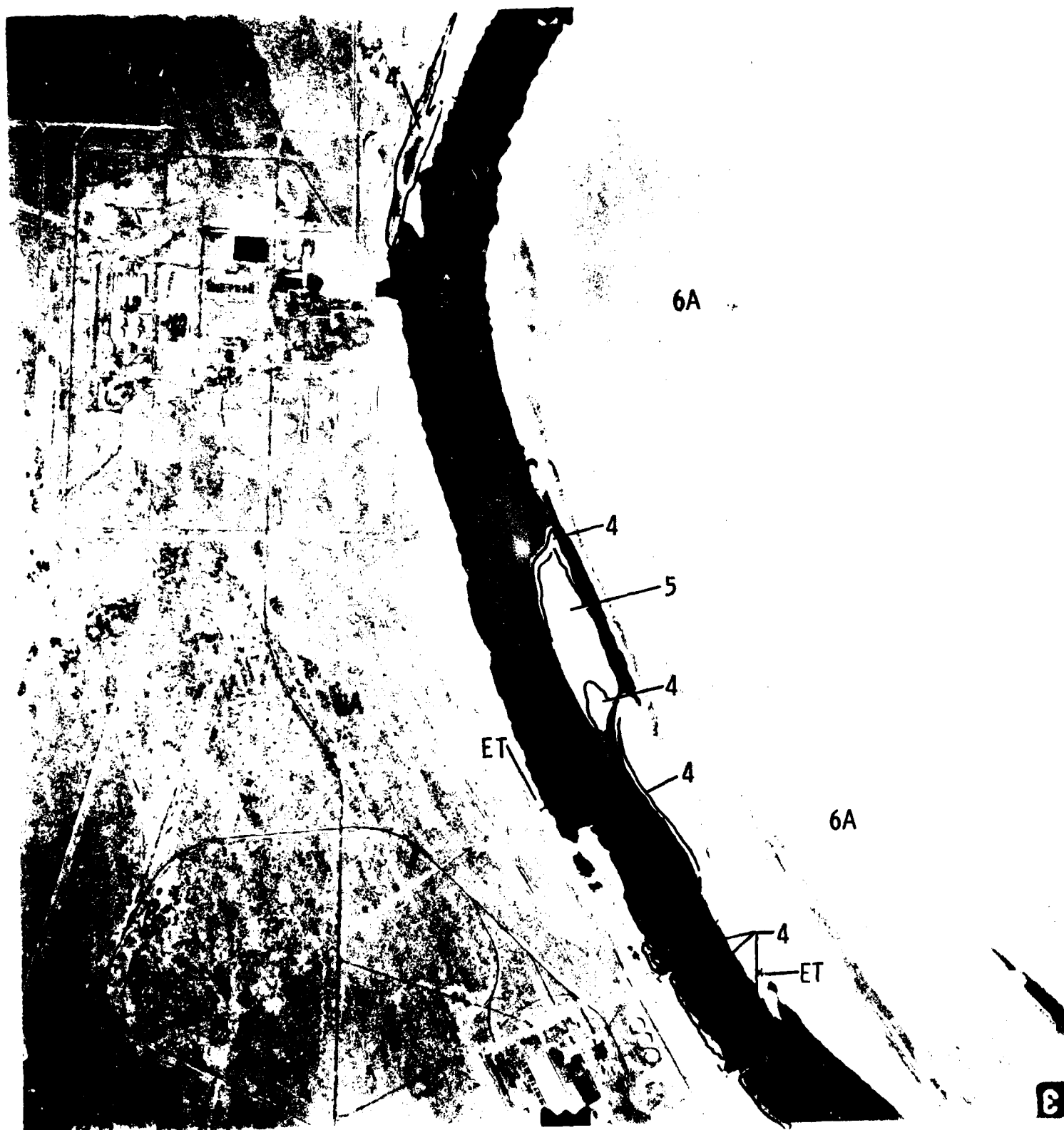


















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